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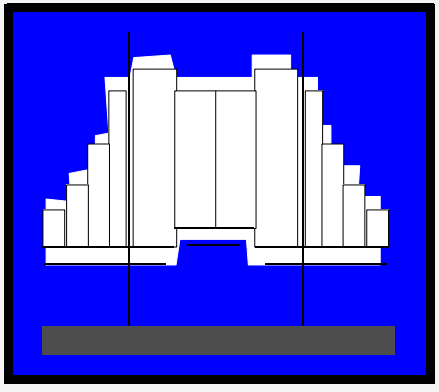
SPECTRUM Enterprise Manager

Device Management

SmartSwitch 6000



Supports Management Module SM-CSI1088, 1076, 1082 /SM-ENT1000, 1001

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Introduction

This section introduces SPECTRUM Device Management documentation for SmartSwitch 6000 devices.

This introduction to the Device Management documentation for Smart Switch 6000 devices contains the following information:

- *Purpose and Scope*
- *Required Reading*
- *Supported Devices* *(Page 7)*
- *The SPECTRUM Model* *(Page 11)*

Purpose and Scope

Use this documentation as a guide for managing SmartSwitch 6000 devices with the SPECTRUM management modules SM-CSI1076, SM-CSI1082, SM-CSI1088, SM-ENT1000, and SM-ENT1001. The documentation describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot SmartSwitch 6000 devices through software models in your SPECTRUM database.

Only information specific to the supported management module is included under this topic. For general information about device management using SPECTRUM and for explanations of basic SPECTRUM functionality and navigation techniques, refer to the documentation listed under *Required Reading*.

Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documentation topics list below:

- ***Getting Started with SPECTRUM for Operators***
- ***Getting Started with SPECTRUM for Administrators***
- ***How to Manage Your Network with SPECTRUM***
- ***SPECTRUM Views***
- ***SPECTRUM Menus***
- ***SPECTRUM Icons***
- ***Management Module Software Release Notice***

Supported Devices

The SPECTRUM management modules SM-CSI1076, SM-CSI1082, SM-CSI1088, SM-ENT1000 and SM-ENT1001 currently allow you to model the following Chassis and SmartSwitch 6000 devices:

- The *6C105 and 6C107 Chassis* on Page 8, are modular chassis that can incorporate two load sharing power supplies and from five to seven SmartSwitch 6000 modules.
- The *SmartSwitch 6000 Modules* on Page 10, which includes Ethernet, Fast Ethernet, Gigabit Ethernet, and Carrier modules.
- Optional High Speed Interface Modules (HSIM), Very High Speed Interface Modules (VHSIM), and Fast Ethernet Port Interface Modules (FEPIM) that plug into the SmartSwitch 6000 modules and provide high speed backbone interfaces to Fast Ethernet, FDDI, ATM, WAN, and Gigabit Ethernet. HSIMs do have a different device icon appearance. This icon is shown next to the standard icon for the Smartswithch 6000, Figure 2.
- **6-SSRM-02** A new module for the SmartSwitch 6000 chassis. The 6-SSRM-02 views are detailed in the ***Smart Switch Router*** document.Networking Characteristics

Each SmartSwitch 6000 module is designed with a fully distributed switching architecture, which allows the modules to be managed as single entities, with a single module acting as a proxy agent for the chassis. See *Management Modes* on Page 8.

The SmartSwitch 6000 provides port mirroring, port trunking, broadcast control, Quality of Service (QoS), VLAN, and topology protocol, all in either traditional 802.1d mode or Cabletron's SecureFast mode. Optional RMON support is also available.

The SmartSwitch 6000 can provide the following port connectivities:

- Switched Ethernet
- Switched Fast Ethernet
- MicroLAN Ethernet or Fast Ethernet
- Gigabit Ethernet uplinks
- OC-3, DS-3/E-3, and OC-12 switched ATM

Management Modes

You can configure the SmartSwitch 6000 module to operate in one of three management modes: Distributed, Standalone, or Mixed.

Note: **Refer to the appropriate SmartSwitch 6000 module user's guides for instructions on configuring the modules for these management modes.**

Distributed Mode

In this mode, the 6C105 chassis can be viewed as a single entity with a single IP address, however the 6C107(Matrix E7) doesn't support this feature yet. The chassis management functions are distributed to all installed modules. This means that a single module in the chassis (such as a 6E233-49) can be used to manage all installed modules. You configure all of the modules in the chassis to the Distributed mode and assign a single IP address to the chassis. SPECTRUM discovery and modeling results in a single Device icon being created in the Topology view for each management module. This icon represents the managing module. SPECTRUM management of the modules is through these Device icons.

Standalone Mode

In this mode, each installed module provides its own management functions. You configure all of the modules in the chassis to Standalone mode and assign separate IP addresses for each module. SPECTRUM management is through the representative Device icons created for each module during discovery and modeling.

Mixed Mode

This mode provides a method of operationally isolating a module (or modules) for security purposes. You set an IP address for the chassis and configure all non-secure modules in Distributed mode. The secure module gets its own IP address and is configured in Standalone mode. SPECTRUM management is through the representative Device icons created.

6C105 and 6C107 Chassis

Figure 1 shows the 6C105 chassis with two power supplies installed and no SmartSwitch 6000 modules installed.

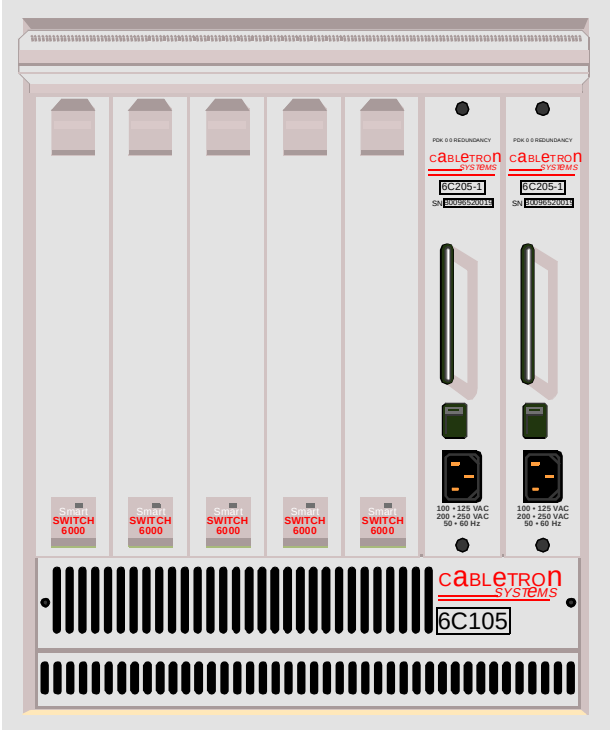
When installed, the modules interface to the Frame Transfer Matrix (FTM) backplane in the chassis, thus each module has a separate,

independent backplane connection to every other module in the chassis.

The 6C107(Enterasys Matrix E7) chassis provides seven slots that can contain a variety of interface modules.

The 6C107's Frame Transfer Matrix Two (FTM2) backplane provides support for a new generation of advanced switching modules while the FTM1 backplane provides backward compatibility and support for the complete family of existing SmartSwitch 6000 modules.

Figure 1: SmartSwitch 6000 6C105 Chassis



SmartSwitch 6000 Modules

The modules are divided into three groups representing three technologies: Ethernet, Fast Ethernet, and Carrier. The groups are supported by SPECTRUM Management Module products as listed in Table 1.

Table 1: SPECTRUM Products

Product	Module Group
SM-CSI1076	6E Ethernet modules
SM-CSI1082	6H Fast Ethernet modules
SM-CSI1088	6M Carrier Module
SM-ENT1000	6H3xx, 6G3xx
SM-ENT1001	6-SSRM-02

Most of the SmartSwitch 6000 modules include slots for optional HSIMs, VHSIMs, or FEPIMs.

All modules support all nine levels of RMON and Cabletron's SecureFast network services.

6E Ethernet Modules

These modules provide the front panel ports and interface uplink connectivities listed in Table 2.

Table 2: 6E Series Connectivities

Module	Connectivity
6E122-26	24 10BaseT ports via RJ45s plus two FEPIM slots
6E132-25	24 10BaseT ports via RJ45s plus one HSIM slot
6E123-26	48 10BaseT ports via two telcos plus two FEPIM slots
6E133-25	24 10BaseT ports via two telcos plus one HSIM slot
6E128-26	24 ports via MMF STs plus two FEPIM slots
6E129-26	24 ports via SMF STs plus two FEPIM slots
6E138-25	24 ports via MMF STs plus one HSIM slot
6E139-25	24 ports via SMF STs plus one HSIM slot
6E123-50	48 MicroLan 10BaseT ports via RJ21 telcos plus 2 FEPIM slots
6E133-49	48 MicroLan 10BaseT ports via RJ21 telcos plus one HSIM slot
6E233-49	48 Ethernet ports via RJ21 telcos plus one HSIM slot

6H Fast Ethernet Modules

These modules provide the front panel ports and interface uplink connectivities listed in Table 3.

Table 3: 6H Series Connectivities

Module	Connectivity
6H122-08	Six 10/100Base-TX ports via RJ45s plus two FEPIM slots
6H122-16	16 10/100Base-TX ports via Cat 5 RJ45 UTPs
6H128-08	Six MMF SC ports and two FEPIM slots
6H129-08	Six SMF SC ports and two FEPIM slots
6H202-24	24 10/100 Fast Ethernet ports via RJ45s
6H252-17	16 10/100 Fast Ethernet ports via RJ45s and one VHSIM slot
6H133-37	Three RJ21 telcos (12 ports each in any combination of auto-negotiating 10BaseT Ethernet or 100BaseT Fast Ethernet) plus one HSIM slot
6H133-37	Three RJ21 telcos (12 ports each in any combination of auto-negotiating 10BaseT Ethernet or 100BaseT Fast Ethernet) plus one HSIM slot
6H203-24	24 port 10/100 switching module via two RJ21 ports
6H253-13	12 port 10/100 switching module via one RJ21 connector
6H258-17	16 MMF ports via MT-RJ connectors and one VHSIM slot
6H262-18	Six fixed RJ45 ports and 2 FEPIM slots
6H302-48	48 RJ45 ports for the 6C105 or 6C107
6H303-48	48 RJ21 ports-10/100 Switch for 6C105/6C107
6H352-25	25 10/100 RJ45 ports

Table 3: 6H Series Connectivities

6M146-04 Carrier Module

This is a SmartSwitch carrier uplink module. It provides two HSIM slots and two FEPIM slots.

*6G306-06 Giganet Module

This is a SmartSwitch giganet module. This module is a 6 Port Gigabit Ethernet switching module for the 6C105/6C107.

The SPECTRUM Model

SPECTRUM uses a single model type for modeling and managing individual basic SmartSwitch modules or groups of modules on a network

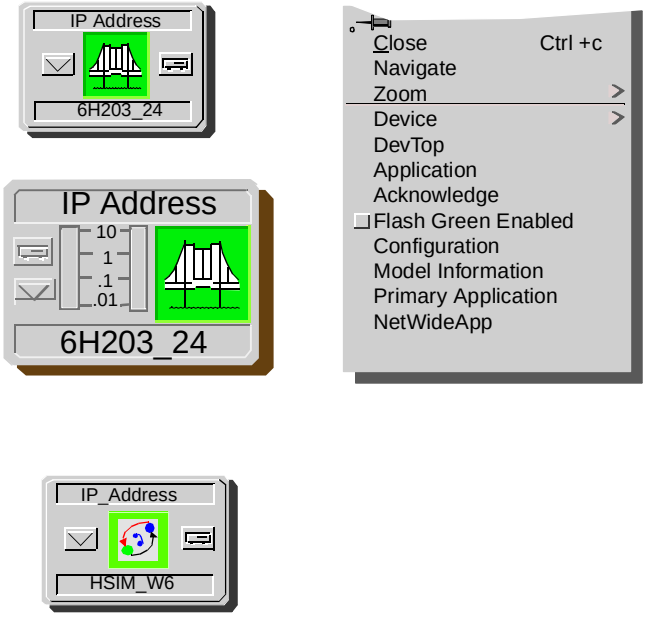
installed in, or connected to, the chassis. SPECTRUM also uses a single model type for modeling and managing the HSIM modules. The models provide access to the information needed to manage the modules, including software emulation of the actual module attributes and functionality. Refer to *Modeling* on Page 61 for modeling instructions.

The model type designators for the SmartSwitch 6000 use an under bar to replace the dash in the device model number. For example, 6E122_26 refers to the model type for the 6E122-26 module.

SPECTRUM's AutoDiscovery (as well as manual modeling procedures) results in the creation of Device icons that represent the modules. These icons provide double-click zones and Icon Subviews menus that let you access views displaying performance and configuration information.

Figure 2 shows examples of the icons and Icon Subviews menu.

Figure 2: Small and Large Device Icons



Views Summary

Device icons provide access to views, subviews, and tables that let you manage the modeled device. Figure 2 shows a general example of the Icon Subviews menu for a Device icon. The views listed below are accessible directly from this menu and are described individually in subsequent sections of this documentation.

- *Performance Views* on Page 17
- *Chassis Device View* on Page 20
- *Interface Device View* on Page 29
- *Backplane Device View* on Page 31
- *Physical Device View* on Page 35
- *Device Topology View* on Page 36
- *Fast Ethernet Application View* on Page 40
- *FDDI MAC Device Configuration View* on Page 49 (available with optional HSIM)
- *ATM Client Application* on Page 41 (available with optional HSIM)
- *CsRipEnetRpt Repeater Application* on Page 45
- *Download Application* on Page 46
- *Device Configuration View* on Page 47
- *Port Configuration - CSIIfPort View* on Page 49
- *FDDI MAC Device Configuration View* on Page 49 (available with optional HSIM or FEPIM)
- *ATM Client Configuration View* on Page 52 (available with optional HSIM or FEPIM)
- *Fast Ethernet Configuration View* on Page 54
- *Repeater Configuration View* on Page 56
- *Ethernet Based Configuration* on Page 58 (available for GPIM models)
- *Model Information View* on Page 60

Tasks

This section lists the device management tasks alphabetically and provides links to descriptions of the views and/or tables used to perform the task.

Advertised Ability (check)

- *Advertised Ability* on Page 55

Alarm Thresholds (set)

- *Model Information View* on Page 60
- *Alarm Configuration* on Page 57

Applications (change)

- *Application Label* on Page 23

ATM Operation (check)

- *ATM Client Configuration View* on Page 52
- *ATM Client Application* on Page 41

Backplane Connections (monitor)

- *Backplane Device View* on Page 31
- *Backplane Module Icon* on Page 33

Bridging Information (view)

- *Application Label* on Page 23

Chassis Information (view)

- *Chassis Device View* on Page 20

Concentrator Status (check)

- *FDDI MAC Device Configuration View* on Page 49

Error Source (selection)

- *Error Source* on Page 58

Fast Ethernet Operation (check)

- *Fast Ethernet Configuration View* on Page 54
- *Fast Ethernet Application View* on Page 40
- *Operational Mode* on Page 54
- *Advertised Ability* on Page 55
- *Received Technology* on Page 55
- *Ethernet Based Configuration* on Page 58

Fast Ethernet Operational Mode (check)

- *Fast Ethernet Configuration View* on Page 54

FDDI Operation (check)

- *FDDI MAC Device Configuration View* on Page 49

Firmware (upgrade)

- *Download Application* on Page 46

Model a SmartSwitch 6000

- *Modeling* on Page 61
- *Modeling Using the Chassis IP* on Page 63
- *Positioning the Chassis Device Icon* on Page 66

Performance Statistics (view)

- *Performance Views* on Page 17

Port Operation (monitor)

- *Chassis Module Icon* on Page 21
- *Interface Labels* on Page 24
- *Interface Device View* on Page 29
- *Interface Icon* on Page 30
- *Administrative Status Label* on Page 30
- *Backplane Module Icon* on Page 33
- *Device Configuration View* on Page 47
- *Port Configuration - CSIIfPort View* on Page 49

Port Operational Mode (set)

- *Interface Labels* on Page 24

Ports (configure)

- *Fast Ethernet Configuration View* on Page 54
- *Ethernet Based Configuration* on Page 58

Power Supply Status (check)

- *Chassis Information* on Page 28

Remote Hardware Received Tech (check)

- *Received Technology* on Page 55

Repeater Frame and Error Stats (view)

- *Repeater Frame & Error Breakdown View* on Page 26

Repeater Frame Size and Protocols (view)

- *Repeater Frame Size & Protocols View* on Page 26

Repeater Performance (check)

- *Repeater Label Icon Subviews Menu* on Page 25)

Repeater Port Status (check)

- *Repeater Configuration View* on Page 56
- *CsRipEnetRpt Repeater Application* on Page 45

Repeater Port Speed (set)

- *Repeater Port Labels* on Page 27

Repeater Port Condition Display (change)

- *Repeater Port Display Form* on Page 26

Topology (check)

- *Device Topology View* on Page 36

Traps (set Up)

- *Device Configuration View* on Page 47
- *Trap Configuration* on Page 57

Virtual Channel Operation (check)

- *ATM Client Application VCL Table* on Page 41
- *Virtual Channel Link View* on Page 43

Performance Views

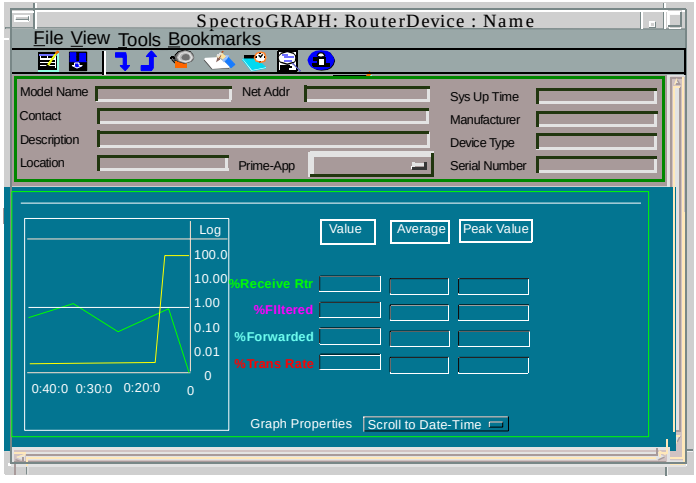
This section provides brief descriptions of Performance views available for models of SmartSwitch 6000 devices in SPECTRUM.

Performance views provide statistical information about the operation of the device and packet information for the device and its ports. The following performance views are described in this section:

- *Device Performance View* on Page 17
- *Bridging Performance View* on Page 18
- *Interface Performance View* on Page 18
- *Repeater Port Performance View* on Page 19

For more information on Performance views, refer to the ***Spectrum Views*** documentation.

Figure 3: Device Performance View



Device Performance View

Access: *From the* ***Icon Subviews*** *menu for the SmartSwitch 6000 Device icon, select* ***Performance.***

This view (Figure 3) provides the following current and historical frame transmission statistics for the device:

- Received Rate
- % Filtered
- % Forwarded
- Transmitted Rate

Bridging Performance View

Access: *From the Application label of the Chassis Module icon, select* ***Bridge Performance.***

This view provides the following information on current and historical frame rate statistics for the bridging application:

- Received Rate
- % Filtered
- % Forwarded
- Transmitted Rate

Interface Performance View

Access: *From the* ***Icon Subviews*** *menu of the Interface icon, select* ***Performance.***

This view provides the following information on current and historical packet transmission statistics, and error load statistics for the selected interface:

- % Transmitted
- % Discarded
- % Error
- % Host Bound
- In Packet Rate
- Out Packet Rate
- Total Packet Rate
- In Load
- Out Load
- Total Load

Repeater Port Performance View

Access: *From the Chassis Module icon, select Repeater Label,* ***Repeater Performance.***

This view provides the following current, average, peak frame rate, and error statistics for repeater ports on the 6E123-50, 6E133-49, 6H123-50, and 6H133-37 modules:

- Load
- Frame Rate
- % Error
- % Collisions

Device Views

This section describes the Device views and subviews available for models of SmartSwitch 6000 devices in SPECTRUM.

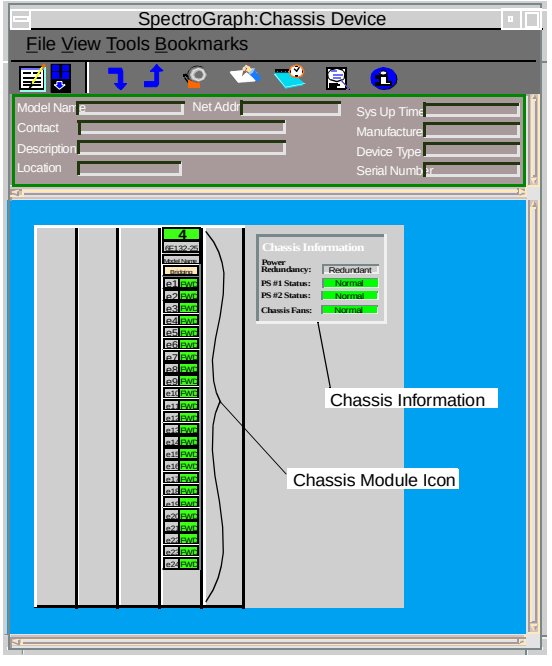
Device views use icons and labels to represent the modeled device and its components, such as modules, ports, and applications. There are four types of Device views for the SmartSwitch 6000 models.

- *Chassis Device View*
- *Interface Device View* on Page 29
- *Backplane Device View* on Page 31
- *Physical Device View* on Page 35

Chassis Device View

This view contains icons that represent the various physical modules installed within the chassis of the modeled devices. It also contains a Chassis Information panel that shows chassis power information. Figure 4 is an example of the view with a device installed in Slot 4 of the chassis. The Chassis Module icon is described under *Chassis Module Icon* on Page 21. The Chassis Information panel is described under *Chassis Information* on Page 28.

Figure 4: 6C105 Chassis Device View



Chassis Module Icon

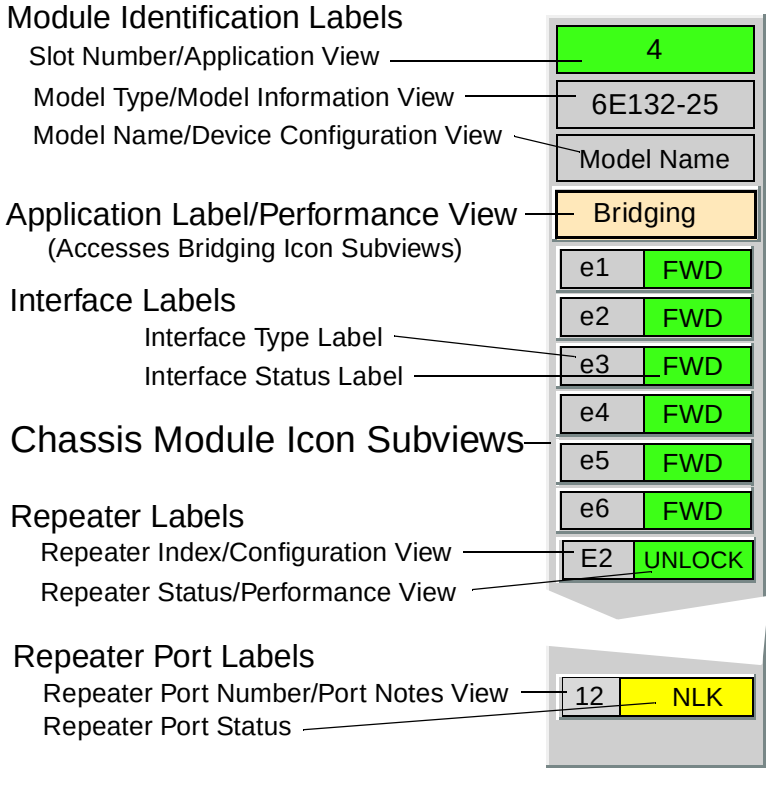
This icon is a logical representation of the physical module, its location in the chassis, its front panel interfaces and ports.

Figure 5 shows an example of a Chassis Module icon. The callouts displayed in the illustration identify the labels and, when applicable, the view which provides double-click access.

The following pages describe the information available from the Chassis Module icon:

- *Module Identification Labels* on Page 22
- *Application Label* on Page 23
- *Interface Labels* on Page 24
- *Module Icon Subviews* on Page 22
- *Repeater Labels* on Page 25
- *Repeater Port Labels* on Page 27

Figure 5: Chassis Module Icon



Module Identification Labels

These labels provide the information described below (see Figure 5).

Slot Number

The module's location in the chassis. Double-click this label to open the Application view described under *Applications View* on Page 37.

Model Type

The type of module in this chassis slot (e.g., 6E132-25). Double-click this label to open the Model Information view described in the ***SPECTRUM Views***.

Model Name

The user-defined or default (IP address) model name. Double-click this label to open the *Device Configuration View* on Page 47.

Module Icon Subviews

Table 4 describes each of the device-specific Icon Subviews menu selections available for the SmartSwitch 6000 modules.

Table 4: Module Icon Subviews Menu Options

Menu Selection	Opens the...
DevTop	Device Topology view described in ***SPECTRUM Views***.
Application	*Applications View* on Page 37.
Configuration	*Device Configuration View* on Page 47.
Model Information	Model Information view described in ***SPECTRUM Views***.
Interface	*Interface Device View* on Page 29.
Application Display	Application selection dialog box, which allows you to select the application to be displayed in the Application label. Example: Bridging.
Basic Alarms	Basic Alarms view described in the ***SPECTRUM Portable Management Application for the SmartSwitch 6000 User's Guide***.

Application Label

This label displays the application currently selected, which is either Bridging, 802.1Q, or Physical. Bridging is the default application. To change the application, highlight the Chassis Module icon and select View > Icon Subviews > Application Display.

Double-click the Application label to open the Performance view, which is described in ***SPECTRUM Views***.

The Application label provides access to the Icon Subviews menu. Table 5 describes the Bridging Application Icon Subviews menu selections. There are no specific Icon Subviews menu selections for the Physical Application.

Table 5: Bridging Application Icon Subviews

Option	Opens the...
Bridge Performance	Bridge Performance view described in ***SPECTRUM Views***.
Bridge Detail	Bridge Detail view described in ***Bridging Applications***.
Bridge Model Information	Model Information view described in *SPECTRUM Views*.
Smart Trunking	SmartTrunking Configuration and Status screen described in ***SPMA views.***
Spanning Tree Information	Spanning Tree Information view described in ***Bridging Applications***.
Static Database Table	Static Database Table view described in ***Bridging Applications***.
Transparent Bridge Information	Transparent Bridge Information view with Forwarding Database and Port tables described in ***Bridging Applications.***

Interface Labels

These labels represent the interfaces located on the front panel of the module. Each label provides access to an Icon Subviews menu, which contains the following three device-specific selections:

- **Operational Mode Configuration** allows you to set the interfaces operational mode to either Standard or Full Duplex.
- **Enable** and **Disable** allow you to control the port's operational status.

Each Interface label displays two information labels: an Interface Type label and an Interface Status label.

Interface Type Label

This label identifies the type and number of the interfaces represented. For example, "e1" refers to Ethernet interface number one for that module.

Interface Status Label

This label indicates the interface's operational status relative to the application using the colors and legends listed in Table 6 and Table 7. See *Application Label* on Page 23 for information on selecting the application to be displayed.

Table 6: Bridging Application Interface Status

Color	Status	Description
Green	FWD	Bridge port is forwarding.
Blue	DIS	Port is disabled.
Magenta	LST	Bridge is in the listening mode.
Magenta	LRN	Bridge is in the learning mode.
Blue	SBY	Bridge port is in the standby mode.
Orange	BLK	Bridge port is in the blocking mode.
Red	BRK	Bridge port is broken.
Blue	UNK	The status is unknown.

Table 7: Physical Application Interface Status

Color	Status	Description
Green	ON	Port is operational.
Blue	OFF	Port is off.
Yellow	TST	Port is in the test mode.

Repeater Labels

The 6E123-50, 6E133-49, 6H123-50, and 6H133-37 modules have repeater ports. The repeater ports on the 6E123-50 and 6E133-49 have a fixed port speed of 10Mb while those on the 6H123-50 and 6H133-37 can be switched between 10 Mb and 100 Mb. The repeater application (CsRipEnetRptr) is used for 10 Mb and 100 Mb support on all of these modules, see the *CsRipEnetRpt Repeater Application* on Page 45.

The Chassis Module Icon provides repeater management via the Repeater labels, which display repeater status and provide access to views that display performance, configuration, and frame statistics information.

The Repeater labels also let you control what type of status is displayed on the Repeater Port labels (administrative, link, or speed status), see *Repeater Port Display Form* on Page 26. The *Repeater Port Labels* on Page 27 let you set the repeater port speed. The Repeater labels contain the following labels.

Repeater Index

Identifies the repeater and provides double-click access to the *Repeater Configuration View* on Page 56.

Repeater Status

Displays the repeater operational status and provides double-click access to the Performance View, which is described in ***SPECTRUM Views***.

The Repeater labels also provide access to the Icon Subviews menu listed in Table 8.

Table 8: Repeater Label Icon Subviews Menu

Menu Selection	Opens the...
Repeater Performance	Performance view described in ***SPECTRUM Views***.
Repeater Frame & Error Breakdown	*Repeater Frame & Error Breakdown View* on Page 26.
Repeater Frame Size & Protocols	*Repeater Frame Size & Protocols View* on Page 26.
Repeater Configuration	*Repeater Configuration View* on Page 56.
Repeater Model Information	Model Information view described in ***SPECTRUM Views***.
Repeater Port Display Form	*Repeater Port Display Form* on Page 26, which lets you select the type of status displayed.

Repeater Frame & Error Breakdown View

This view displays frame and error statistical information for a selected repeater port. The statistics are displayed in the form of pie charts and tables.

The Frame Breakdown displays the numerical and statistical breakdown of all the frames transmitted and received through the selected repeater.

The Error Breakdown displays the number of traffic errors in an error-per-second format.

The buttons at the bottom of the view affect how the statistics are represented in the pie charts and tables, as described below.

Total
Displays the current statistical information for all items contributing to the total value.

Delta
Displays the difference between the previously polled values and the current value of every item contributing to the total.

Accum
Displays the accumulated statistical information for all items since the Accum button was last selected.

Clear
Restarts the counter. The values will continue to accumulate until **Clear** is selected or another representation mode is selected.

Selecting Total**,** Delta**, or** Accum **affects the numerical as well as graphical representation of every item contributing to the total.**

For more information on the individual error types, refer to ***How to Manage Your Network with SPECTRUM***.

Repeater Frame Size & Protocols View

This view displays a statistical breakdown of frame sizes and protocols for a selected repeater port. The frame size and protocol breakdowns are displayed in the form of pie charts and tables (as described above for the Repeater Frame & Error Breakdown view).

Repeater Port Display Form

This option on the Repeater label Icon Subviews menu provides three choices: Admin, Link, and Speed. These choices determine which operational condition is displayed on the associated Repeater Port labels. For example, if

you select Admin via the E1 Repeater label, the Repeater Port labels associated with E1 (i.e., Ports 1 through 12) will display the administrative status.

Repeater Port Labels

The 6E123-50 and 6E133-49 modules have 10 Mb repeater ports while the 6H123-50 and 6H133-37 modules have the capability of switching ports between 10 Mb and 100 Mb repeaters. For example, a 6H133_37 model would have three 100 Mb repeater models, but depending on the configuration, it might have six repeater models, three at 10 Mb and three at 100 Mb. The CsRipEnetRptr application is used for all these modules for either 10 Mb or 100 Mb support.

The Chassis Module Icon provides Repeater Port labels, which allow you to perform repeater port management. The views accessible from the Repeater Port label Icon Subviews menu are listed in Table 9.

Table 9: Repeater Port Label Icon Subviews

Menu Selection	Description
Port Notes	Opens a note pad for your use.
Port Frame & and Error Breakdown	Opens the Repeater Port Frame & Error Breakdown view.
Port Frame Size & Protocols	Opens the Repeater Port Frame Size & Protocols view.
Enable/Disable Port	Opens a dialog box that lets you enable or disable the port.
Set Port Speed	Opens a dialog box that lets you set the port speed to Auto, 10 Mbps, or 100 Mbps.

Repeater Port Number

Shows an index number identifying a particular repeater port.

Repeater Port Status

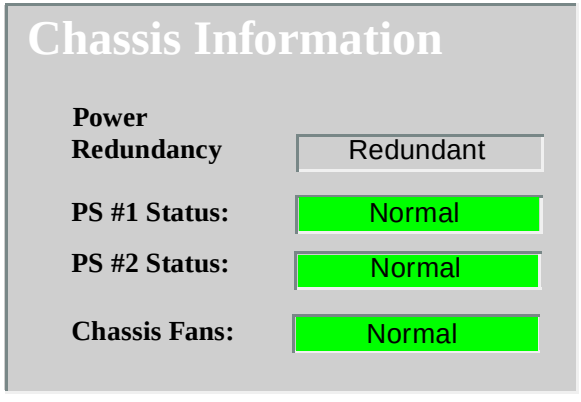
Indicates the port activity status.

The Repeater Port Frame & Error Breakdown view and Repeater Port Frame Size & Protocols view provide pie charts and tables that are similar to what is described for the *Repeater Frame & Error Breakdown View* on Page 26 and the *Repeater Frame Size & Protocols View* on Page 26.

Chassis Information

This area of the Chassis Device view provides information for the chassis power modules and cooling fans. Figure 6 shows the Chassis Information fields as displayed in the Chassis Device view.

Figure 6: Chassis Information



Power Redundancy

Displays the source of power for the chassis. "Redundant" indicates that power from the secondary source is being used for the chassis. "NON-Redundant" indicates that power from the primary power source is being used.

PS #1 Status

Displays the current status of power supply one.

PS #2 Status

Displays the current status of power supply two.

Chassis Fans

Displays the operation state of the chassis fans.

Table 10 lists the possible states and color indication for the power supplies and chassis fans.

Table 10: Chassis Information Status Definitions

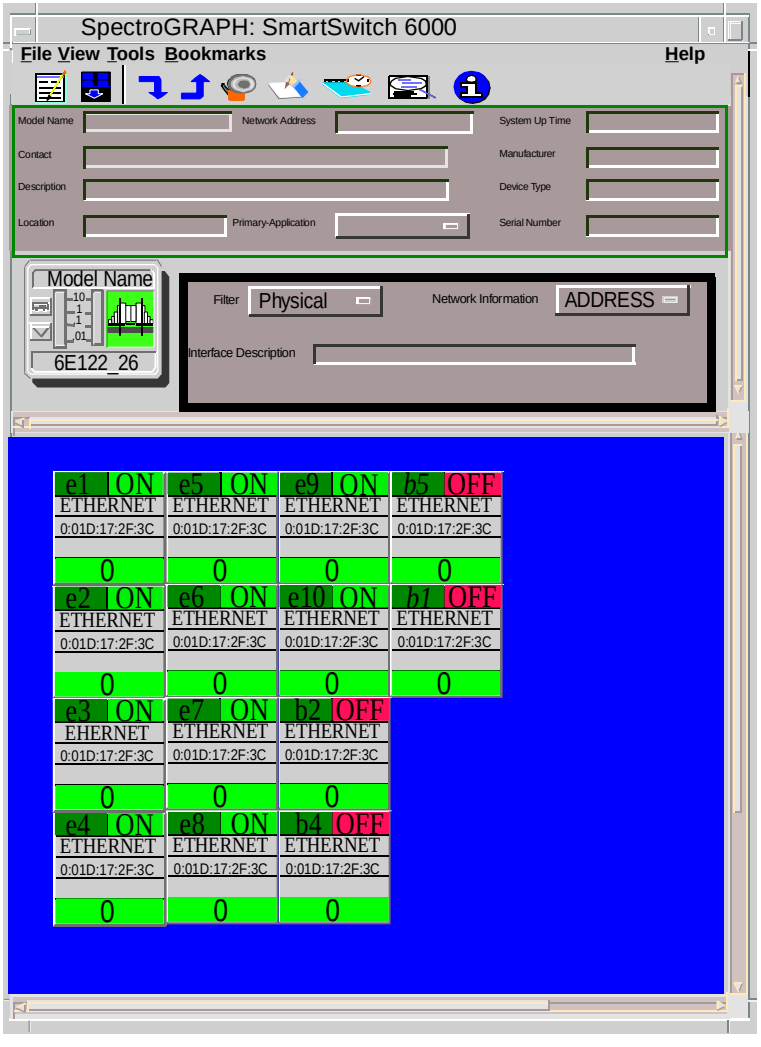
Color	Definition
Green	Normal
Gray	Not installed
Red	Not operational
Blue	Unknown

Interface Device View

Access: *From the* ***Icon Subviews*** *menu of the SmartSwitch 6000, select* ***Device > Interface****.*

This view (Figure 7) provides dynamic configuration and performance information for each of the device's serial/network I/O ports, which are represented by Interface icon in the bottom panel of the view, as shown in Figure 8. The middle panel of the view also displays a Device icon, which allows you to monitor the device operation and access other device-specific views.

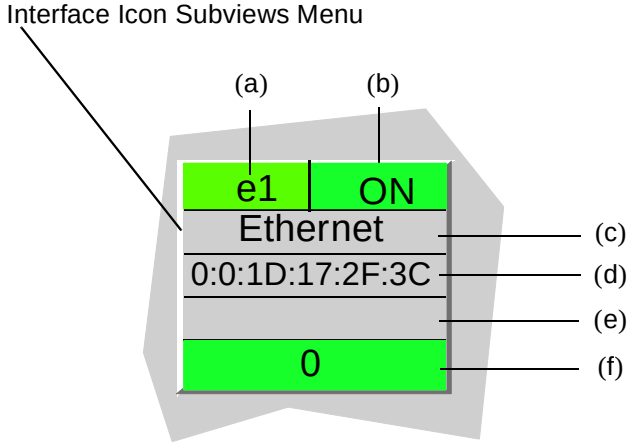
Figure 7: Interface Device View



Interface Icon

This icon is a logical representation of a network interface or port, see *Interface Device View* on Page 29. Figure 8 shows a sample Interface icon, its labels and double-click zones.

Figure 8: Network Interface Module Icon



(a) Interface Number Label
(b) Status Label/Port Configuration
(c) Interface Type Label
(d) MAC Address Label/Model Information
(e) Network Information Label/Secondary Address Panel
(f) Gauge Label/Port Performance

Interface Number Label

This label identifies this interface (”e” indicates an Ethernet interface, “b” indicates a backplane interface, and the numeral represents the interface number on this module).

Interface Type Label

This label displays the type of network interface module (e.g., Ethernet, FDDI, etc.).

Interface Icon Subviews

Table 11 describes each of the Icon Subviews menu selections available for the Interface icon.

Table 11: Interface Icon Subviews

Menu Selection	Opens the...
Configuration	*Port Configuration - CSIIfPort View* on Page 49.
Secondary Address Panel	Panel that provides the secondary address and mask for the interface.
Protocols (with HSIM only)	*ATM Client Application* on Page 41.
Model Information	Model Information view described in ***SPECTRUM Views***.

Administrative Status Label

This label displays the state of this port (On, Off, Testing). Table 12 and Table 13 list the possible states relative to the application selected. The

default application for this view is Physical (MIB-II). To select the application to be displayed (Physical or Bridging), click the Filter menu button in the Interface Options panel. This label provides double-click access to *Port Configuration - CSIIfPort View* on Page 49.

MAC Address Label

This label displays the physical address of the network interface module and accesses the CSI Port Model Information view described in ***SPECTRUM Views***.

Network Information Label

This label displays the network address, name, or subnet mask, which you select using the Interface Options panel. The default is network address. Double-click this label to access the Secondary Address Panel described in ***SPECTRUM Views***.

Table 12: Physical Application Administrative Status

Color	Status	Description
Green	ON	Port is operational
Blue	OFF	Port is off
Magenta	TST	Port is in the test mode

Table 13: Bridging Application Administrative Status

Color	Status	Description
Green	FWD	Bridge port is forwarding
Blue	DIS	Port is disabled
Magenta	LST	Bridge is in listening mode
Magenta	LRN	Bridge is in learning mode
Orange	BLK	Bridge port is in blocking mode
Red	BRK	Bridge port is broken

Gauge Label

This label displays the performance statistic that you set in the Gauge Control Panel, which is accessible from the Interface Options panel. Double-click this label to access the Performance view. For more information see the ***SPECTRUM Views*** documentation.

Backplane Device View

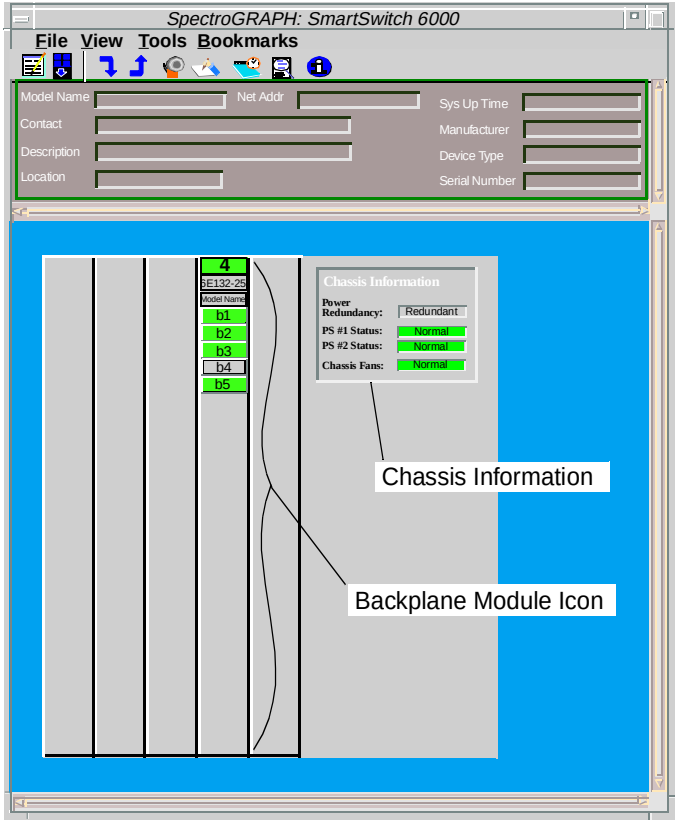
Access: *From the Chassis Device view, select* ***View*** > ***Page*** > ***Back plane.***

A sample Backplane Device view is shown in Figure 9. The view contains Backplane Module icons that represent the backplane connections

for each of the modules installed in the chassis, see, *Backplane Module Icon* on Page 33.

The Backplane Device view also contains a Chassis Information panel, which shows the same information as a similar panel on the Chassis Device view, see Chassis Information, *Chassis Information* on Page 28.

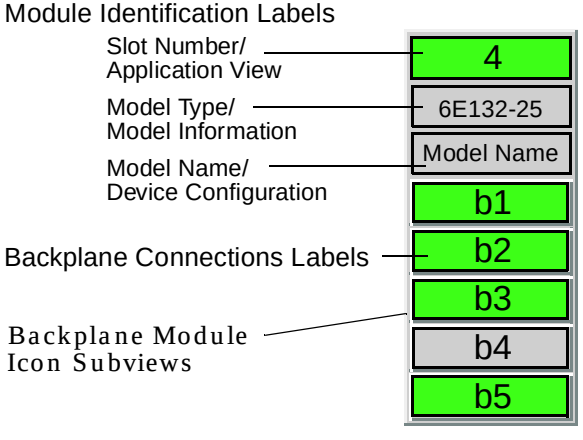
Figure 9: 6C105 Backplane Device View



Backplane Module Icon

Figure 10 shows a sample Backplane Module icon, which displays in the Backplane Device view. This icon represents the physical module, its location in the chassis, and its backplane interfaces.

Figure 10: Backplane Module Icon



Backplane Module Icon Subviews

Table 14 describes the device-specific Backplane Module Icon Subviews menu selections for the module.

Table 14: Backplane Module Icon Subviews

Option	Open the...
DevTop	Device Topology view described in ***SPECTRUM Views***.
Application	*Applications View* on Page 37.
Configuration	*Device Configuration View* on Page 47.
Model Information	Model Information view described in ***SPECTRUM Views***.
Interface	*Interface Device View* on Page 29.

Module Identification Labels

These labels provide the following information that identifies a specific device.

Slot Number

The module's location in the chassis. Double-click this area to open the Application view described under *Applications View* on Page 37.

Model Type

The type of module in the chassis (for example 6E132-25). Double-click this area to open the *Model Information View* on Page 60.

Model Name

A user-defined name; otherwise, it defaults to the IP address. Double-click this area to open the *Device Configuration View* on Page 47.

Backplane Connections Labels

These labels represent the interfaces between the module and the FTM backplane. The device-specific Icon Subviews menu selection for these labels is **Configuration**, which opens a dialog box that lets you enable or disable the selected port. Note in Figure 15 that the Backplane Module icon has a gray Backplane Connection label (b4), which corresponds with interface four of the chassis backplane.

Table 15 describes the possible operational states of the backplane connections.

Table 15: Backplane Connection Status Descriptions

Color	Status	Description
Green	ON	Operational
Yellow	NLK	Operational but not linked
Magenta	Test	Operational test
Blue	Off	Operationally and administratively down
Red	Off	Operationally down but administratively enabled
Gray	UNK	Unknown

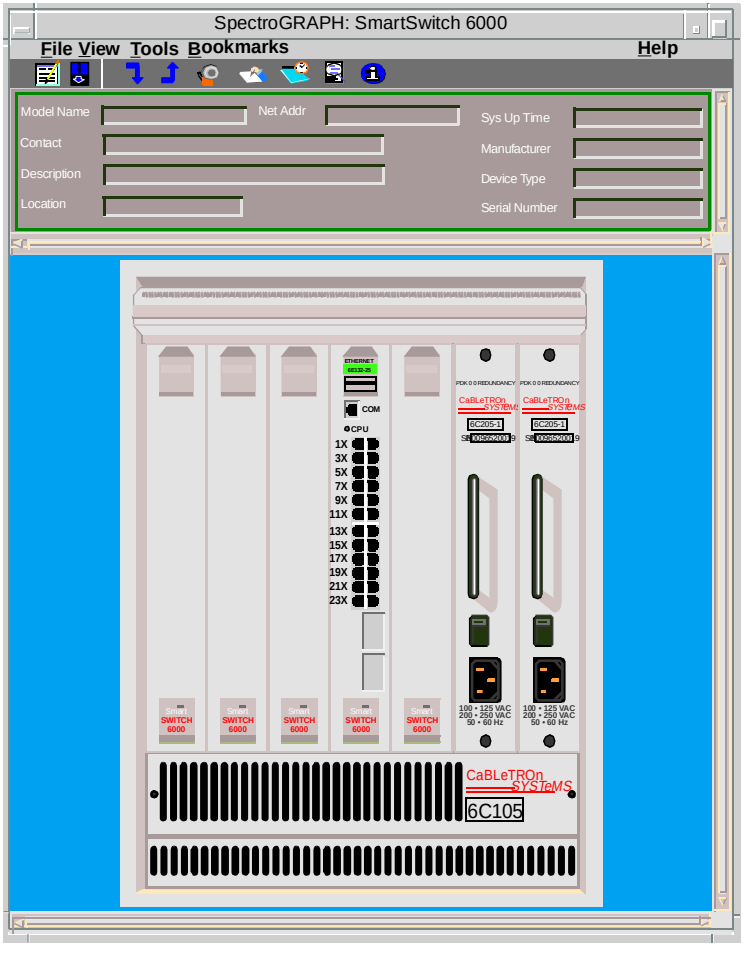
Chassis Information

The Chassis Information panel within the Backplane Device view provides the same information as a similar panel in the Chassis Device view described under *Chassis Information* on Page 28.

Physical Device View

This view provides a static image of the 6C105 or the 6C107 chassis and the modules installed in it. Figure 11 shows a sample Physical Device view with two power supplies and a module installed in Slot 4.

Figure 11: 6C105 Physical Device View+



Device Topology View

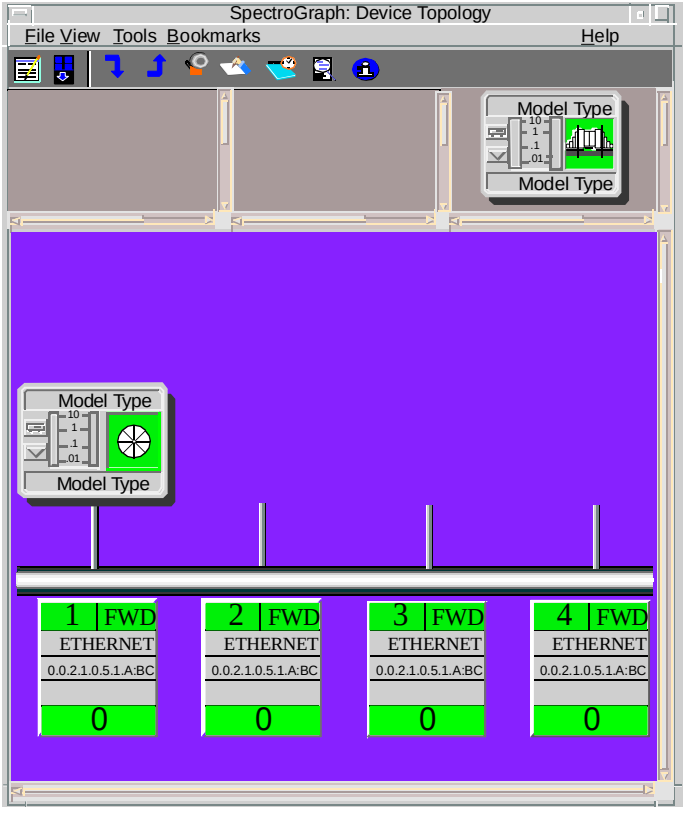
This section provides brief descriptions of the Device Topology views available for models of SmartSwitch 6000 devices in SPECTRUM.

Access: *From the* ***Icon Subviews*** *menu for the SmartSwitch 6000 Device icon, select* ***DevTop.***

Device Topology views (Figure 12) show the connections between a modeled device and other network entities. The lower panel of the Device Topology view for the SmartSwitch 6000, uses interface icons to represent the device's serial/network I/O ports. These icons provide the same information and menu options as those in the *Interface Device View* on Page 29. If there is a device connected to a particular interface, a device icon appears on the vertical bar above the interface icon along with an icon representing the network group that contains the device.

For further information on Device Topology views, refer to the ***SPECTRUM Views*** documentation.

Figure 12: Device Topology View



Applications View

This section describes the Application view and the associated application-specific subviews available for models of SmartSwitch 6000 devices in SPECTRUM.

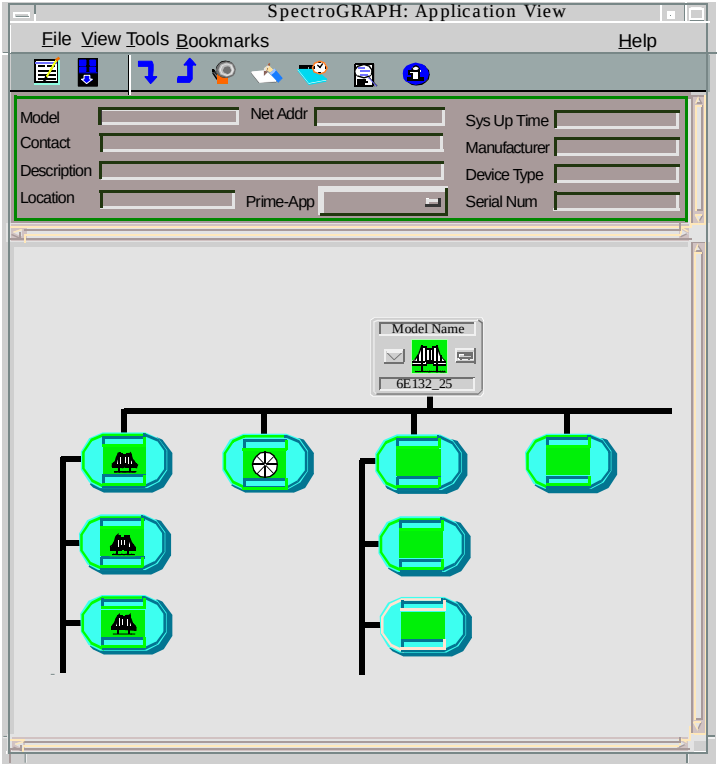
Access: *From the* ***Icon Subviews*** *menu for the SmartSwitch 6000 Device icon, select* ***Application***.

When a device model is created, SPECTRUM automatically creates a model for each of the major and minor applications supported by the device. The Application view identifies all of these application models, shows current condition status, and provides access to application-specific subviews.

Figure 13 shows an Application view in its default mode (Icon) where each of the application models is represented by an Application icon (see Figure 14 for a close-up). The Application icons are arranged hierarchically under a Device icon, with major applications in the top row and their respective minor applications stacked directly below.

If you prefer to see applications displayed by name only in a single vertical list, select **View > Mode > List**.

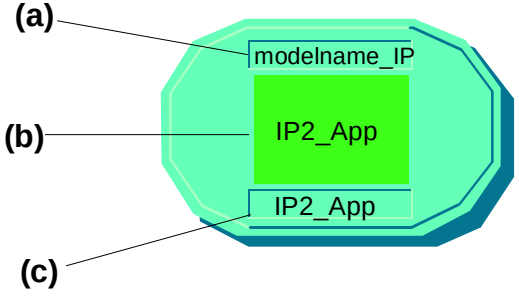
Figure 13: Application View



Application Icons

When the Application view is in Icon mode, each of the application models is represented by an Application icon (Figure 14). Double-clicking the Model Name label (a) at the top of the icon opens the associated Model Information view-*Model Information View* on Page 60. For some applications, the Model Type label (c) at the bottom of the icon is also a double-click zone, which opens an application-specific view. Any views accessible through these double-click zones are also accessible from the Application icon's **Icon Subviews** menu.

Figure 14: Application Icon



a Model Name Label/ Model Information View

b Condition Status Label

c Model Type Label / Application Specific View

Chassis Applications View

Access: *From the* ***Icon Subviews*** *menu for the SmartSwitch 6000 device icon, select* ***Chassis Application.***

The Chassis Application view for the 6C105/6C107 (Matrix E7) view shows a single 6C105/6C107 icon. There are four views available from the 6C105/6C107 (Matrix E7 device icon:

- *Device View* (Page 38)
- *Model Information View* (Page 39)
- *Container View* (Page 39)
- *Module View* (Page 39)

Device View

Access: *From the* ***Icon Subviews*** *menu for the 6C105/6C107 device icon in the Application view, select* ***Device > Chassis****.*

This view provides that same information as the *Chassis Device View* on Page 20.

Model Information View

Access: *From the* ***Icon Subviews*** *menu for the 6C105/6C107 device icon in the Chassis Application view, select* ***Model Information.***

For information on this view refer to *Model Information View* on Page 60.

Container View

Access: *From the* ***Icon Subviews*** *menu for the 6C105/6C107 device icon in the Chassis Application view, select* ***Container View***.

This view displays the modules that are contained in the chassis and provide access to the *Device Topology View* on Page 36, *Chassis Device View* on Page 20, and *Device Performance View* on Page 17.

Module View

Access: *From the* ***Icon Subviews*** *menu for 6C105/6C107 device icon in Chassis Application view, select* ***Module***.

This view provides the following information:

Condition
Displays the state of the module. The possible states are: Normal, Minor, or Major.

Slot
Displays what slot the module currently resides within.

Module Type
Displays the type of module.

Network Address
Displays the network address of the module.

Communtiy Sting
Displays the type of community string currently in place on the selected module.

Supported Applications

SmartSwitch 6000 devices support both common and device-specific application.

Applications that are common to many of the different kinds of and makes of devices are listed in Table 16 along with their corresponding documentation.

The views and subviews available for the SmartSwitch 6000 device-specific applications are described in the rest of this section, grouped by major application listed below:

- *Fast Ethernet Application View* on Page 40
- *FDDI MAC Application* on Page 41 (available with optional HSIM)

- *ATM Client Application* on Page 41 (available with optional HSIM)
- *CsRipEnetRpt Repeater Application* on Page 45

For further information on optional HSIM applications see the ***Miscellaneous Application*** documentation.

Table 16: Common Applications

Application	For more info, see...
Bridging (CSIBridge)	***Bridging Application***
MIB-II (SNMP2_Agent)	***MIB II Applications***
Standard RMON	***Standard RMON***
Download Application (CtDownLoadApp)	***Spectrum Portable Management Application Tools Guide***

Fast Ethernet Application View

Access: *From the* ***Icon Subviews*** *menu for the Application icon, select* ***Fast Ethernet*** *or Double-click the Application icon.*

This view provides access to the Model Information view (described in ***SPECTRUM Views***) and the Fast Ethernet Port Table described below.

Fast Ethernet Port Table

This section of the Fast Ethernet Application views provides the information described below, and also provides access to the *Fast Ethernet Configuration View* on Page 54, when you double-click any entry in the table. The Fast Ethernet Configuration view carries the Interface, Port Group, and Port information over from this table.

Interface
The interface number of the port for which this Fast Ethernet information pertains.

Port Group
The port group number for which this Fast Ethernet information pertains.

Port
The physical port number for which this Fast Ethernet information pertains.

Operational Mode
The current operational mode of selected port.

FDDI MAC Application

This section describes the FDDI MAC (FddiMAC) Application, which is available for modules having the optional HSIM installed.

Table 17 lists the application-specific subviews available from the Icon Subviews menu for the FDDI MAC application.

Table 17: FDDI MAC Icon Subviews

Menu Selection	Description
DevTop	Opens the Device Topology view described in ***SPECTRUM Views***.
Station List	Opens the FDDI Station List view described in ***Miscellaneous Applications***.
Acknowledge	Allows you to acknowledge an alarm condition.
Configuration	Opens the *Device Configuration View* on Page 47.
Model Information	Opens the Model Information view described in ***SPECTRUM Views***.

ATM Client Application

This application is used to monitor and control ATM channels via the ATM Client Application VCL Table described below. Table 18 lists the application-specific subviews available for the application.

Table 18: ATM Client Application Icon Subviews

Option	Opens the...
Configuration	*Device Configuration View* on Page 47.
Model Information	Model Information view described in ***SPECTRUM Views***.
VCL Table	ATM Client Application VCL Table described below.
Interfaces	*Port Configuration - CSIIfPort View* on Page 49 and the CSIIfPort Performance view described in ***SPECTRUM Views***.

ATM Client Application VCL Table

Admin Status

Implemented only for a VCL that terminates a VCC (i.e., one that is not cross-connected to other VCLs). Its value (`Up` or `Down`) specifies the desired administrative state of the VCL, i.e., whether traffic flow is enabled or disabled.

Oper Status
Indicates the current operational status of the VCL. Up and Down indicate whether the VCL is operational. Unknown indicates that the status of this VCL cannot be determined.

Last Change
The value of **sysUpTime** at the time this VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this field contains a zero value.

RTD (Receive Traffic Description) Index
The value of this field identifies the row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

TTD (Transmit Traffic Description) Index
The value of this field identifies the row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

AAL (ATM Adaptation Layer) Type
An instance of this field only exists when the local VCL endpoint is also the VCC endpoint and AAL is in use. The field indicates the type of AAL used on this VCC, which includes AAL1, AAL3/4, and AAL5. The other type is a user-defined AAL type. The unknown type indicates that the AAL type cannot be determined.

Transmit Size
An instance of this field only exists when the local VCL endpoint is also the VCC endpoint and AAL5 is in use. The field indicates the maximum AAL5 CPCS SDU size in octets that is supported on the transmit direction of this VCC.

Receive Size
This field is used when the local VCL endpoint is also the VCC endpoint and AAL5 is used. It indicates the maximum AAL5 CPCS SDU size in octets that is supported on the receive direction of this VCC.

Encaps Type
An instance of this field only exists when the local VCL endpoint is also the VCC endpoint and AAL5 is in use. The field indicates the type of data encapsulation used over the AAL5 SSCS layer. (Reference RFC 1483, Multiprotocol Encapsulation over ATM AAL5, and the ATM Forum LAN Emulation specification.)

VCL CC (Cross Connect) Id
This field is implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC. All such associated VCLs have the same value as this field, and all their cross-connections are identified by entries in the Cross Connect Table for which VCL CC Id has the same value. The value of this field is initialized after the

associated entries in the Cross Connect Table have been created.

Row Status

This field is used to create, delete, or modify a row in this table. To create a new VCL, this field is initially set to `createAndWait` or `createAndGo`. This field must not be set to `active` unless the following columnar fields exist in this row:

- RTD Index
- XTD Index
- AAL Type (if the local VCL endpoint is also the VCC endpoint)
- Transmit Size (for AAL5 connections only)
- Receive Size (for AAL5 connections only)
- Encaps Type (for AAL5 connections only)

Note: **The Community Name field in the Communication Information panel of the Model Information view must be set to "private" in order to change the fields in the table views.**

To make a change to the rows in the table view, do the following:

1. In the Communication Information panel, change the Community Name field to `private`.
2. From the Icon Subviews menu, select **Table View**.
3. Set the path information for the row you wish to create, change, or remove.
4. Press **Return** and click **OK**.
5. To create or change a row, click the **Create** button, change the applicable fields in the Change view and click the right mouse button. Click **OK**.
6. Click the **Validate Row** button and return to the application table view to see the change.
7. To remove a row, highlight it, click the **Remove** button, and then the **Update** button.

The row will then be removed from the table view.

Double-clicking a field entry opens the interface-specific ATM Switch Application Virtual Channel Link view, which is described below.

Virtual Channel Link View

Access: *From the* ***Icon Subviews*** *of the ATM Application icon, select* ***Virtual Channel Link.***

Interface

Displays the interface index for this VPI and VCI.

VPI (Virtual Path Identifier)
Displays the VPI value of the VCL. The maximum VPI value cannot exceed the value allowable by the Interface MaxVPI Bits.

VCI (Virtual Channel Identifier)
Displays the VCI value of the VCL. The maximum VCI value cannot exceed the value allowable by the Interface MaxVCI Bits.

Admin Status
Implemented only for a VCL that terminates a VCC (i.e., one that is not cross-connected to other VCLs). Its value (Up or Down) specifies the desired administrative state of the VCL, i.e., whether traffic flow is enabled and disabled for this VCL.

Oper Status
Indicates the current operational status of the VCL. `Up` and `Down` indicate that the VCL is operational or not operational, respectively. Unknown indicates that the status of this VCL cannot be determined.

Row Status
Used to create, delete or modify a row in this table. To create a new VCL, this field is initially set to `createAndWait` or `createAndGo`. This field must not be set to `active` unless the following columnar fields exist in this row:

- RTD Index
- XTD Index
- AAL Type (if the local VCL endpoint is also the VCC endpoint)
- Transmit Size (for AAL5 connections only)
- Receive Size (for AAL5 connections only)
- Encaps Type (for AAL5 connections only)

Encaps Type
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The field indicates the type of data encapsulation used over the AAL5 SSCS layer. (Reference RFC 1483 Multiprotocol Encapsulation over ATM AAL5 and the ATM Forum LAN Emulation specification.)

AAL (ATM Adaptation Layer) Type
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL is in use. The field indicates the type of AAL used on this VCC, which includes AAL1, AAL3/4, and AAL5. The value `Other` is a user-defined AAL type. `Unknown` indicates that the AAL type cannot be determined.

Last Change
The value of `sysUpTime` at the time this VCL entered its current operational state. If the current state was entered prior to the last re-initialization of the agent, then this field contains a zero value.

Cross Connect Id
Implemented only for a VCL that is cross-connected to other VCLs that belong to the same VCC. All such associated VCLs have the same value of this field, and all their cross-connections are identified by entries in the Cross Connect Table for which VCL CC Id has the same value. The value of this field is initialized by the agent after the associated entries in the Cross Connect Table have been created.

Xmit Descr Index
Identifies the row of the ATM Traffic Descriptor Table that applies to the transmit direction of this VCL.

Transmit Size
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The maximum AAL5 CPCS SDU size in octets that is supported on the transmit direction of this VCC.

Rcv Descr Index
Identifies the row in the ATM Traffic Descriptor Table that applies to the receive direction of this VCL.

Receive Size
Only exists when the local VCL endpoint is also the VCC endpoint, and AAL5 is in use. The maximum AAL5 CPCS SDU size in octets that is supported on the receive direction of this VCC.

CsRipEnetRpt Repeater Application

Access: *Double-click the* ***CsRipEnetRpt Repeater*** *Application icon.*

The CsRipEnetRpt supports the 6H123_50, 6E133_49, 6H123_50, and 6H133_37 model types.

Table 19 lists all the application-specific subviews available from the Icon subviews menu for this application.

Table 19: CsRipEnetRpt Application Icon Subviews

Menu Selection	Open the...
DevTop	Device Topology view described in *SPECTRUM Views*.
Configuration	*Repeater Configuration View* on Page 56.
Information	Repeater Model Information view described in *SPECTRUM Views*.

Download Application

This application provides download functionality for the module. The model type for this application is CtDownLoadApp.

The Download Application view is an SPMA view and is described in *SPECTRUM Portable Management Application Tools Guide.*

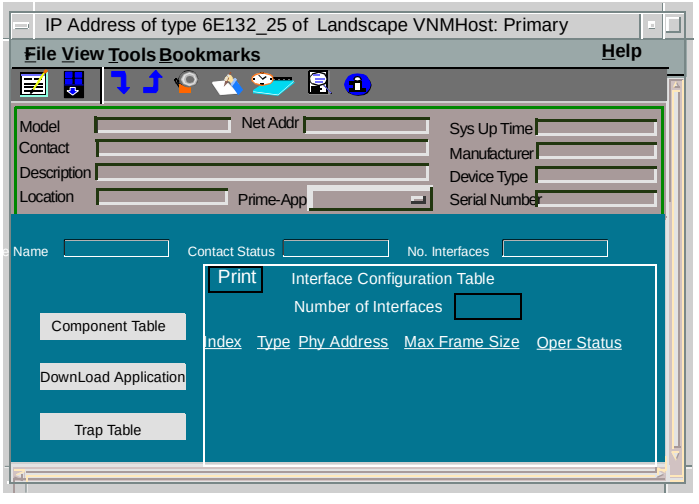
Configuration Views

This section describes the various Configuration views and subviews available for models of SmartSwitch 6000 devices in SPECTRUM.

Configuration views (Figure 15) allow you to view and modify current setting for the modeled device and its interfaces, ports, and applications. The following Configuration views are available for models of the SmartSwitch 6000:

- *Device Configuration View* on Page 47
- *Port Configuration - CSIIfPort View* on Page 49
- *FDDI MAC Device Configuration View* on Page 49 (available with optional HSIM or FEPIM)
- *ATM Client Configuration View* on Page 52 (available with optional HSIM or FEPIM)
- *Fast Ethernet Configuration View* on Page 54
- *Repeater Configuration View* on Page 56
- *Ethernet Based Configuration* on Page 58 (available with GPIM models)

Figure 15: Device Configuration View



Device Configuration View

Access: *From the* ***Icon Subviews*** *menu the SmartSwitch 6000 Device icon, select* ***Configuration****.*

This view (Figure 15) provides status and configuration information about the device as a whole as well as on a port-by-port basis. Fields and Column headings with the Device Configuration view and its subviews are explained in further detail in the ***SPECTRUM Views*** documentation.

Contact Status
Indicates whether a connection has been established with the module.

Component Table

Accesses the Community Name view. For information on using the Community Name view, refer to ***SPECTRUM Portable Management Application Tools Guide***.

Download Application

Accesses the TFTP DownLoad dialog box, which lets you upgrade firmware for the module from the TFTP Boot or Bootp Server. For more information, refer to ***SPECTRUM Portable Management Application Tools Guide***.

Trap Table

Opens a dialog box that lets you set up your workstation to be notified of traps received and sent by a module.

Interface Configuration Table

This section of the Device Configuration views provides the following information:

Number of Interfaces
The number of interfaces available from the module.

Index
The numerical value identifying the port.

Type
The type of hardware interface for the port.

Phy Address
The MAC address of the port.

Max Frame Size
The maximum frame size for the module.

Oper Status
The current operational state of the port.

Port Configuration - CSIIfPort View

Access: *From the* ***Icon Subviews*** *of the SmartSwitch 6000 Interface Icon, select* ***Configuration****.*

This view displays interface-specific MIB information for the module.

Interface Index
The numerical value identifying the port.

Interface Type
The type of interface for the port (e.g., Ethernet, FDDI, etc.).

Operation Status
The current operating state of the port.

Admin Status
A button that lets you change the current administrative status of the port.

IF Description
Allows you to enter a textual description of the interface.

FDDI MAC Device Configuration View

Access: *From the* ***Icon Subviews*** *menu for the Chassis Device views, select* ***FDDI Configuration****, or from the* ***Icon Subviews*** menu *of the FddiMac Application icon, select* ***Configuration****.*

This view provides information on the configuration and operating status of the concentrator. The view is divided into two areas, Station Configuration and SMT Information.

Station Configuration

This area of the FddiMAC Device Configuration view provides information specific to the FDDI station.

Ring State
The current state of the FDDI ring. Table 20 lists the possible states and their descriptions.

MAC Configuration
Displays the actual configuration of the station. Table 21 lists the possible configuration states and their descriptions.

Current MAC Path
The ring that this station resides on. Possible values are `Primary`, `Secondary`, `Local`, or `Isolated`.

MAC Address
The MAC (physical) address of this station.

MAC Count
The number of MACs supported by this station.

Non Master Ports
The number of non-master ports on this station.

Master Ports
The number of master ports on this station.

Table 20: FDDI Ring Stats

Ring State	Description
Isolated	The concentrator is not attached to the ring.
Non-Op	The concentrator is attempting to enter the ring.
Ring-Op	The ring is operational.
Detect	The claim/beacon process of the FDDI ring protocol has exceeded one second. This indicates a potential problem.
Non-Op-Dup	The ring failed to complete the claim/beacon process because a duplicate FDDI address has been detected.
Ring-Op-Dup	The ring is operational, but a duplicate FDDI address has been detected.
Directed	The claim/beacon process did not complete within nine seconds. The concentrator is now sending directed beacons to indicate a problem.
Trace	A problem has been detected with the station or its upstream neighbor. A trace is being sent to notify the upstream neighbor of the problem. The concentrator and all stations between the concentrator and its upstream neighbor can perform self-tests.

Table 21: SMT MAC Configuration States

Ring State	Description
Isolated	The port is not inserted into any path.
Local_A	The A port is inserted into a local path and the B port is not.
Local_B	The B port is inserted into a local path and the A port is not.
Local_AB	Both A and B ports are inserted into a local path.
Local_S	The S port is inserted into a local path.
Wrap_A	The secondary path is wrapped to the A port.
Wrap_B	The secondary path is wrapped to the B port.
Wrap_AB	The primary path is wrapped to the B port and the secondary path is wrapped to the A port.
Wrap_S	The primary port is wrapped to the S port.
C_Wrap_A	The primary and secondary paths are joined internally in the station and wrapped to the A port. Regarding token flow, all resources on the secondary path precede those of the primary path.
C_Wrap_B	The primary and secondary paths are joined internally in the station and wrapped to the B port. Regarding token flow, all resources on the secondary path precede those of the primary path.
C_Wrap_S	The primary and secondary paths are joined internally in the station and wrapped to the S port. Regarding token flow, all resources on the secondary path precede those of the primary path.
Thru	The primary path enters the A port and emerges from the B port. The secondary path enters the B port and emerges from the A port.

SMT Information

This area of the FddiMAC Device Configuration view provides the following configuration information on the FDDI SMT:

SMT Version
The version of Station Management (SMT) running.

OBS Present
Indicates whether an Optical Bypass Switch (OBS) is connected.

T-Notify (sec)
The timer value, in seconds, used in Neighbor Notification Protocol. The allowed range is from 2 to 30 seconds.

T-Req (milli sec)
The Target Token Rotation Time (TTRT) bid, in milliseconds, made by this concentrator.

T-Neg (milli sec)
The winning TTRT bid, in milliseconds, on the ring.

TVX (milli sec)
The valid transmission time, in milliseconds.

ATM Client Configuration View

This view provides VPI/VPC configuration information on the ATM interfaces.

Max VPCs (Virtual Path Connections)
The maximum number of VPCs supported at this ATM interface. At the UNI (User Network Interface), the maximum number of VPCs ranges from 0 to 256.

Max VCCs (Virtual Channel Connections)
The maximum number of VCCs supported at this ATM interface.

Conf VPCs
The number of VPCs configured for use at this ATM interface. At the UNI (User Network Interface), the configured number of VPCs ranges from 0 to 256.

Conf VCCs
The number of VCCs configured for use at this ATM interface.

Max VPI (Virtual Path Identifier) Bits
The maximum number of active VPI bits configured for use at this ATM interface. At the UNI (User Network Interface), the maximum number of active VPI bits configured for use ranges from 0 to 8.

Max VCI (Virtual Channel Identifier) Bits
The maximum number of active VCI bits configured for use at this ATM interface.

ILMI (Interim Local Management Interface) VPI
The VPI value of the VCC supporting the ILMI at this ATM interface. If the values of both ILMI VPI and ILMI VCI equal 0, then the ILMI is not supported for this ATM interface.

ILMI VCI
The VCI value of the VCC supporting the ILMI at this ATM interface. If the values of both ILMI VPI and ILMI VCI equal 0, then the ILMI is not supported for this ATM interface.

Address Type
The type of primary ATM address configured for use at this ATM interface.

Admin Address
The address assigned for administrative purposes. If this interface has no assigned administrative address or if the address used for administrative purposes is the same as that used for the physical address, then this is an octet string of zero length.

Neighbor Address
The IP address of the neighbor system connected to the far end of this interface to which a Network Management Station can send SNMP messages as IP datagrams to UDP port 161 in order to access network management information concerning the operation of that system.

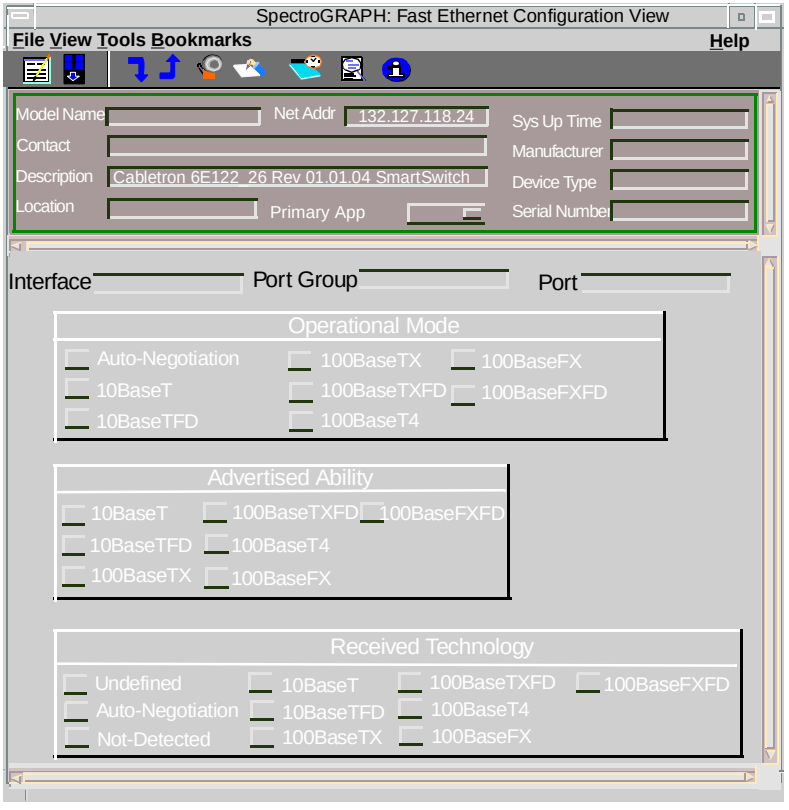
Neighbor If Name
The name of the interface on the neighbor system at the far end of this interface, and to which this interface connects. If the neighbor system is manageable through SNMP and supports the object ifName, the value of this object must be identical to that of the ifName for the ifEntry of the lowest level physical interface for this port. If this interface does not have a name, the value of this object is a zero length string.

Fast Ethernet Configuration View

Access: *Double-Click any entry in the* ***Fast Ethernet Port Table*** *to open this view.*

This view (Figure 16) lets you configure ports for Ethernet, Fast Ethernet, or Auto-Negotiation. The Fast Ethernet Configuration views contains three panels: Operational Mode, Advertised Ability and Received Technology, that provide additional information for configuring this device.

Figure 16: Fast Ethernet Configuration View



Operational Mode

This panel, in the Fast Ethernet Configuration view, shows the current operational mode of this port. If you select `Auto-Negotiation`, you can

select as many modes as needed from the Advertised Ability selections. You can only select one Operational Mode. Table 22 shows the current modes, their values, and descriptions.

Table 22: Operational Mode Values

Operational Mode	Value	Description
Auto Negotiation	2	Auto Negotiation / Parallel Detect.
10Base-T	8	10Base-T
10Base-TFD	16	Full duplex 10Base-T
100Base-TX	32	100Base-TX
100Base-TXFD	64	Full duplex 100Base-TX
100Base-T4	128	100Base-T4
100Base-FX	256	100Base-FX
100Base-FXFD	512	Full Duplex 100Base-FX

Advertised Ability

This panel, in the Fast Ethernet Configuration view, shows the advertised ability of the local hardware, which only becomes active on ports that have `Auto-Negotiation` enabled. Auto-negotiation allows the FE-100TX RJ45 port to self-configure to 10 or 100 Mbps depending on the speed of the attached module. The interfaces can also dynamically configure themselves for `Full Duplex` or `Half Duplex` (standard mode) operation when both ends of the link support auto-negotiation. When only one link partner supports auto-negotiation, the mode defaults to half duplex. Table 23 lists the advertised ability modes, their values, and descriptions.

Table 23: Advertised Ability Values

Advertised Ability	Value	Description
10Base-T	8	10Base-T
10Base-TFD	16	Full Duplex 10Base-T
100Base-TX	32	100Base-TX
100Base-TXFD	64	Full Duplex 100Base-TX
100Base-T4	128	100Base-T4
100Base-FX	256	100Base-FX
100Base-FXFD	512	Full Duplex 100Base-FX

Received Technology

This panel, in the Fast Ethernet Configuration view, shows the received technology of the remote hardware, or link partner. Table 24 lists the

received technology modes, their values, and descriptions. These modes are read only.

Table 24: Received Technology Values

Received Technology	Value	Description
Undefined	1	Undefined
Auto-Negotiation	2	Auto-Negotiation / Parallel Detection
Not-Detected	4	Link Partner does not support Auto-Negotiation
10Base-T	8	10Base-T
10Base-TFD	16	Full duplex 10Base-T
100Base-TX	32	100Base-TX
100Base-TXFD	64	Full duplex 100Base-TX
100Base-T4	128	100Base-T4
100Base-FX	256	100Base-FX
100Base-FXFD	512	Full duplex 100Base-FX

Repeater Configuration View

Access: *From the Chassis Device view highlight the appropriate Repeater label on the Chassis Module icon, from* ***Icon Subviews*** *menu, then select the* ***Repeater Configuration****.*

The Repeater Configuration view provides information on the configuration and operating status of the selected repeater interface. This view is divided into the four areas described below (**Repeater Management**, **Trap Management**, **Alarm Configuration**, **and Error Source**).

Repeater Management

This area of the Repeater Configuration view provides the port information described below.

Port Count

Displays the total number of ports on this LAN segment.

Ports On

Displays the total number of ports currently in the ON state on this network.

Ports Operational

Displays the number of operational ports on this network.

Network Ports

Allows you to enable the network ports on this network segment. Possible states are: NoEnable and Enable.

Trap Configuration

This area of the Repeater Configuration view allows you to enable or disable the following traps.

Link Traps

Allows all packets indicating a change in link status to be reported within the trap database. Possible menu selections are: `Disable`, `Enable`, and `Other`.

Segmentation Traps

Allows all packets indicating a change in segmentation status to be reported within the trap database. Possible menu selections are: `Disable`, `Enable`, and `Other`.

Alarm Configuration

This area of the Repeater Configuration view provides configuration information on generating alarms for the selected module. This area contains the fields described below.

Timebase

Displays the user defined time interval, in seconds, for the Traffic Threshold. The lowest allowable value is `10`.

Traffic Alarms

Allows you to enable or disable detection of Traffic Alarms.

Traffic Threshold

Displays the threshold value for the number of packets that can be transmitted during the Timebase before generating a traffic alarm. This field is user-configurable from 1 to 4 billion.

Collision Alarms

Allows you to enable or disable detection of Collision Alarms.

Collision Threshold

Displays the threshold value within the alarm timebase which, once that number of collisions per good packet is exceeded, generates a collision alarm. This value is user-configurable. Allowable range is 1 to 15 collisions per good packet.

Broadcast Alarms

Allows you to enable or disable detection of Broadcast Alarms.

Broadcast Threshold

Displays the threshold value within the alarm timebase which, once that number of broadcasts received is exceeded, generates a broadcast alarm. This value is user-configurable. Allowable range is 1 to ~4 billion.

Error Alarms
Allows you to enable or disable detection of Error Alarms. Possible menu selections are: Enable and Disable.

Error Threshold
Displays the threshold value for the percentage of errors per good packet that may occur within the Timebase before generating an error alarm. This value is user-configurable from 1 to 100.

Error Source

This area of the Repeater Configuration view provides a series of buttons that let you select the types of errors to include in the error sum. The selectable error types are as described below.

CRC
Packets with bad Cyclical Redundancy Checks.

Runts
A packet that is one byte less than the standard Ethernet frame of 64 bytes (not including preamble).

OOW_Colls
Collisions out of the standard window due to a network problem.

Alignment
Misaligned packets detected.

No_Resource
The number of times the module ran out of resources (i.e., lack of buffer space) and could not accept packets.

Giants
Packets received that exceed 1518 bytes (not including preamble).

Ethernet Based Configuration

Access: *From the Chassis Icon, select* ***Ethernet Based Configuration.***

This view provides port configuration information for GPIM models. This view also shares fields with the *Fast Ethernet Configuration View* on Page 54 and the shared fields are covered there. The fields below detail the device specific information found with this view.

Auto Negotiate Mode
Indicates whether Auto-Negotiation is enabled for a specific port. If `Auto-Negotiation` is disabled the port will revert to the speed, duplex, and flow control settings specified by their associated leaves in the Flow Control groups.

Remote Auto Signal
Indicates whether the remote end of the link is operating in Auto-Negotiation signaling or not.

Flow Control
The current or desired operational status of the full-duplex flow control on this port.

Port Type
Gives the name of the device configured on this port.

Link Status
Describes the status of the link for the device configured on this port.

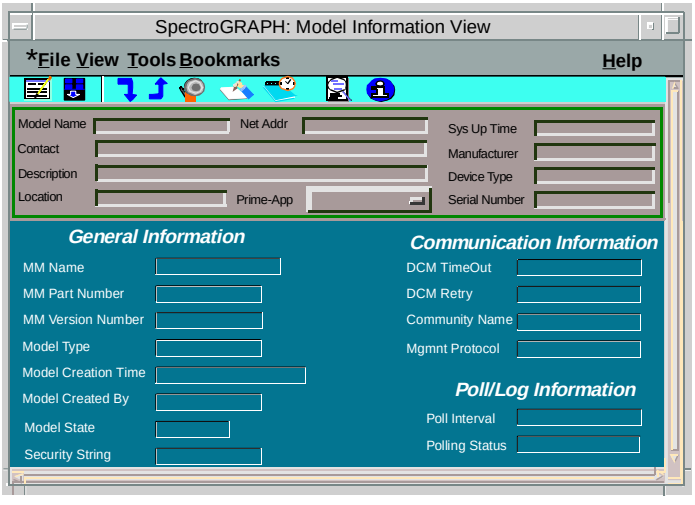
Advertised Abilities
This field is described under the *Fast Ethernet Configuration View* (Page 54).

Model Information View

This section provides a brief description of the Model Information view available for models of SmartSwitch 6000 devices in SPECTRUM.

Model Information views provide descriptive and configuration information about SPECTRUM models of individual devices, interfaces, and applications. Figure 17 shows an example of the Model Information view accessed from the **Icon Subviews** menu for the 6E132_25 model's Device Icon. Model Information views are also available for each of the Interface icons in the Interface Device and Device Topology views, and for each of the Application icons in the Application view. Although these views may vary slightly depending on the particular entity being modeled, their basic layout and content are similar for most SPECTRUM management modules. Therefore these views are described in more detail in the ***SPECTRUM Views*** documentation.

Figure 17: Model Information View



Modeling

This section describes how to manually model a 6C105 chassis and a SmartSwitch 6000 module installed in the chassis and place the resulting device icons in their proper SPECTRUM views.

Introduction

The following topics are covered in this section:

- *AutoDiscovery vs. Manual Modeling* on Page 61
- *Manual Modeling Overview* on Page 62
- *Preparation for Modeling* on Page 63
- *Modeling Using the Chassis IP* on Page 63
- *Positioning the Chassis Device Icon* on Page 66

AutoDiscovery vs. Manual Modeling

SPECTRUM's AutoDiscovery is recommended if you are modeling a network for the first time or want to discover and model a network segment after making changes to it.

AutoDiscovery is not recommended for use when the SmartSwitch 6000 is in Mixed Management mode, see *Management Modes*.

Autodiscovery involves manually modeling a seed router, bridge, or switch (if such a model does exist) and then running AutoDiscovery one or more times to complete the network model. You then refine your autodiscovered network model to improve management capabilities.

Note:

Refer to *Getting Started with SPECTRUM for Administrators* and *How to Manage Your Network with SPECTRUM* for instructions on using AutoDiscovery and refining your network model.

The manual modeling procedures described in this section should be used when making minor changes to the network. This includes such

actions as placing an already discovered module in Mixed Management mode or adding a new chassis or module to the network.

For proper device management, the module's Device icon appear in a Topology view and you may place the chassis's Device icon in a Room Location view. This is true whether you use AutoDiscovery or manual modeling. In some instances, this may require you to copy and paste Device icons into the proper SPECTRUM views. The manual modeling instructions given in this section describe how this is accomplished.

Manual Modeling Overview

The following alternatives exist for modeling your network components manually.

- **Modeling using the chassis IP address in a Location View**. Create a chassis model within a Room Location view using the chassis's IP address. Once the chassis is modeled, SPECTRUM's distributed management feature identifies and models the modules contained in the chassis and places their Device icons in the chassis's Container view. You then copy and paste the Device icons into the Topology view.
- **Modeling using the Chassis IP Address in the Topology view**. You can also create the chassis IP address in the Topology view by modeling with the chassis's IP address in the Topology view and all the models in the chassis will appear here. Locate the chassis Device icon in the Search Manager. Select an attribute by which you can search for your Chassis. Create a Room Location view and copy the chassis Device icon into the Room Location view.

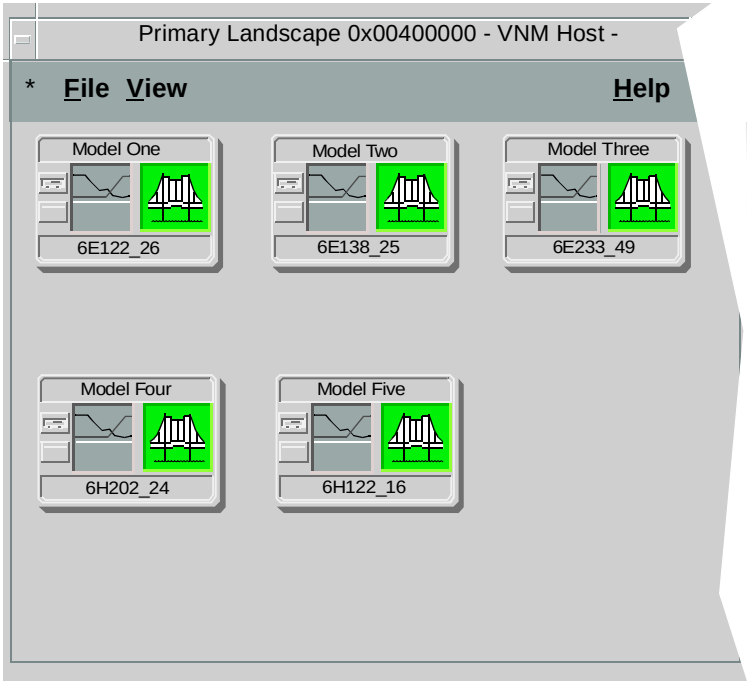
This only works when models are in the distributed mode.

Container View

Access: *From the* ***Icon Subviews*** *men for the Chassis Device icon, select* ***Container****.*

This view (Figure 18) displays Location view Device icons for each module modeled in SPECTRUM and contained in the chassis.

Figure 18: Chassis Container View



Preparation for Modeling

Before modeling the chassis, you should be familiar with the process of creating models and accessing views. Refer to ***Getting Started with SPECTRUM for Administrators*** and ***How to Manage Your Network with SPECTRUM*** for instructions. You should also be familiar with any network management and firmware requirements described in the 6C105/6C107 chassis firmware documentation.

Caution: **For proper modeling, the chassis and its installed modules must not be in Mixed Management mode. Each module should have its own IP address or the chassis should be configured with a single IP address.**

Modeling Using the Chassis IP

The chassis model can only be placed in a Room Location view. The Room Location view is created by starting at the Universe level view and navigating into the Room Location level, as described below.

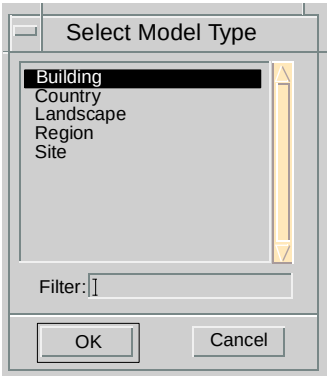
1 At the Universe level, select **View > New View > Location.**

This places you at the top level of the Location views.

2 Access the Edit mode and select **Edit > New Model**.

The Select Model Type dialog box displays (Figure 19).

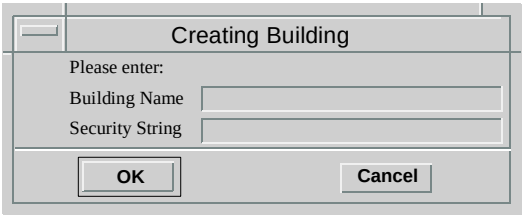
Figure 19: Select Model Type Dialog Box



3 Select **Building** and then click **OK**.

The Creating Building dialog box displays (Figure 20).

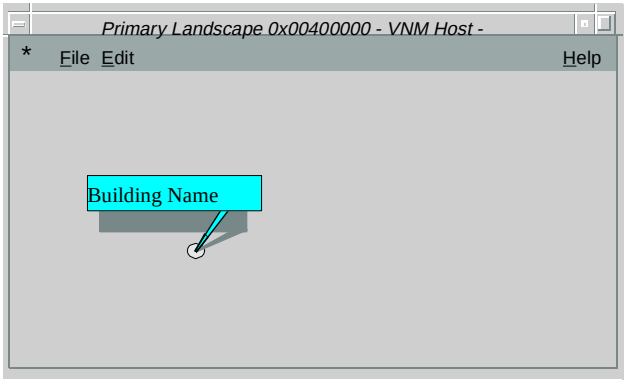
Figure 20: Creating Building Dialog Box



4 Enter the Building name and a Security String (optional) and click **OK**.

The Building icon appears in the Building Location view (Figure 21).

Figure 21: Building Location View



5 Exit the Edit mode and double-click the Building icon to open its Location view.

6 Access the Edit mode and select **View > New Model**.

The Select Model Type dialog box displays.

7 Select **Room** and then click **OK**.

The Room Creation dialog box displays.

8 Enter a Room name and a Security String (optional) and then click **OK**.

The Room icon displays in the Room Location view.

9 Exit the Edit mode.

This places you in the Room Location view, where you can create the chassis model.

10 Double-click the Room icon to open its Location view.

11 Access the Edit mode,

12 Select **Edit > New Model**.

The Select Model Type dialog box displays.

13 Select **6C105** and click **OK**.

The Creating 6C105 dialog box displays.

14 Enter the Network Address (IP) and click **OK**.

15 Exit the Edit mode when the chassis Device icon appears in the Room Location view.

New Model By IP Option

This option for modeling a module or chassis proceeds as follows:

1 In the appropriate Topology view, select **File > Edit** to place the view in the Edit mode.

2 Select **Edit > New Model By IP**.

The Select Model Type dialog box displays,

3 Enter the IP address assigned to the module.

4 Enter the Community Name that has been assigned locally to the module. The default Community Name value is “public.”

Note: **See your network administrator to verify that the Community Name has not been changed from “public” to another access policy name.**

5 Click **OK**.

SPECTRUM places the Device icon representing the module at the top of the Topology view.

6 Select **File > Close Edit** to exit the Edit mode.

7 See **Positioning the Chassis Device Icon**, below, to properly locate the automatically created chassis Device icon.

Positioning the Chassis Device Icon

Some of the modeling procedures described above automatically create a chassis Device icon. This icon can be copied into a Room Location view.

1 Create a Room Location view using Steps 1 through 10 in *Modeling Using the Chassis IP* (Page 63).

2 To locate the chassis Device icon, activate the Topology view and select Utilities > **Search Manager**.

3 Copy the chassis Device icon into the Room Location view as follows:

   a Within the Find view, select **File > Edit**.

   b Select **6C105**.

   c From the Edit menu, select **Copy**.

   d Access the Room Location view and select **File > Edit** to enter the Edit mode.

   e Select **Paste**.

   The icon appears in the Room Location view.

   f Exit the Edit mode.

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